



Alares works with clients to reduce expenses, clean the environment, decrease energy consumption, and minimize carbon emissions.

Energy and the Environment

# SUMMER NEWSLETTER

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## Alares Wins Energy Award

The Association of Energy Engineers recognized the Alares energy savings design and construction of a geothermal heating and cooling system for the Air National Guard at its facility at Bradley Air Base in East Granby, Connecticut in a recent award ceremony. The Air National Guard Base also won an Energy Award for their efforts in reducing energy costs at federal facilities. Lt. Colonel Jim Works, the Base Engineer, pioneered the use of geothermal applications at Air National Guard bases. He is extremely pleased with the performance of Alares' installation and is in the process of installing two additional geothermal systems for other buildings on base.

The geothermal system Alares installed will achieve savings of 30% or more in annual energy costs. The 40-ton ground source heat pump system is connected to 25 geothermal wells that are coupled to eleven heat pumps that provide heating and cooling. The heat pumps are controlled by the base energy management system. Building occupants are more than satisfied with the improved heating and cooling comfort.

## New Certifications for Alares

### *Don Maggioli earns GCD Certification*

The Association of Energy Engineers **Certified GeoExchange Designer (CGD)** program is designed to recognize professionals who have demonstrated high levels of experience,

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**Photo: Don Maggioli (left) and Lt. Col Works (center) accept Awards. Dave Mitchell of Alares on right.**

competence, proficiency, and ethical fitness in applying the principles and practices of geothermal heat pump design and related disciplines, as well as to raise the professional standards within the field, and to encourage

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those involved in the design process through a continuing education program of professional development.

*Alares is one of a handful of New England firms that has this critical GCD certification.*

### ***Dave Mitchell earns EBCP Certification***

The Association of Energy Engineers has established the **Existing Building Commissioning Professional** certification program with the dual purpose of recognizing the most qualified professionals in this growing area within the energy industry, and raising the overall professional standards within the existing building commissioning field.

Dave Mitchell has over 25 years of HVAC industry experience. Dave's skills are key for helping our clients become more energy efficient especially when it comes to HVAC systems. Dave is also a **LEED Accredited Professional**.

Congratulations for achieving these important certifications!

## **Alares Completes 2,200 Ft. Geothermal Well**

The Department of Veterans Affairs selected "Direct Use" Geothermal for heating applications for their campus buildings in Reno, Nevada. Direct Use Geothermal is using naturally hot waters below the earth for heating. The direct use of geothermal resources is a proven, economic and clean energy option that saves money and reduces pollution. The VA retained Alares to install

well to determine whether a known geothermal source in the area called the Moana Hot Springs is located beneath the Reno Medical Center. Another direct-use project just a couple of miles away have achieved temperatures of 175°F which is used for heating a Casino.

Alares installed a geothermal test boring to 2,200 feet. After the well was installed, a pump test was conducted to determine the pumping capacity of the well. The pump test results helped determine well flow rates and temperatures. In addition to the pump test, Alares conducted an injection test to determine the pressure required to return used waters to the aquifer.

The next step for using this valuable resource is to install additional wells at the facility and connect them to a heat exchanger. After heat is extracted from the water through a heat exchanger, the water will re-injected into the aquifer.



**Photo: Setting Casing for the Well**

*Alares installs a 2,200 ft well to capture heat from the earth.*

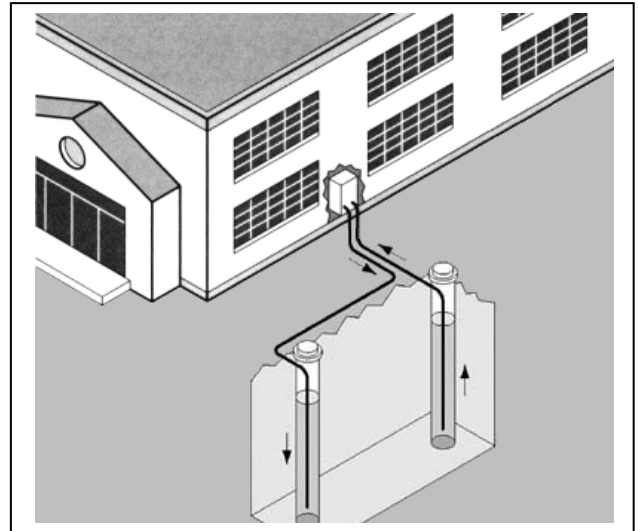
## Alares Completes Geothermal Feasibility Studies

Alares LLC (Alares) conducted energy feasibility studies (FS) for the Department of Veterans Affairs (VA) at two California VA Medical Centers (VAMCs). The studies included the assessment of medical campus buildings for geothermal heating and cooling. The purpose of these studies were to assess the technical and economical feasibility for the potential retrofit of the aged heating, ventilating, and air-conditioning (HVAC) systems on the campuses, with renewable energy state-of-the-art geothermal systems. The two potential geothermal systems evaluated include:

- a) Direct-Use, and b) Ground Source Heat Exchange.

The feasibility studies took into consideration site conditions, existing mechanical systems conditions and a financial analysis for system installations. In the performance of these studies, Alares gathered all pertinent information from the sites, analyzed and provided insight into the operating profile of the facilities and provided recommendations for financing.

After evaluated site and existing site conditions, Alares used Life Cycle Cost Analysis to determine whether the geothermal retrofits were economically feasible. Existing utility data was used to establish baseline energy use.



Simulated annual performance and energy consumption for the conventional and geothermal HVAC systems was conducted using the DOE-2 building simulation software in eQuest®. This information was then used in the Life Cycle Cost analysis to evaluate economic feasibility.

As a result of our evaluation, the VA is proceeding with the design and installation of several geothermal systems. Alares is currently installing test wells and will be conducting soil thermal conductivity testing for designing the geothermal loop fields.

*Alares evaluated geothermal retrofits for large medical facility campuses.*

## Alares Designs Energy Savings - Rhode Island Style

The Charlestown Wine and Spirits Store owner, Jon Maldon, is going “green”. Jon wanted to make the new store environmentally friendly because “I want to contribute to making the world a better place”. The architects from Oyster Works, also share the same view and designed a high performance building for Jon. Jon also selected geothermal because of the energy savings and reduction in greenhouse gases. The new timber frame building will have highly insulated walls and roof to make the building very tight. You can learn more about the innovative construction methods and materials by going to Oyster Work’s website, <http://www.oysterworks.net>. The architects selected Alares because they found Alares to be a firm that “knows what they’re doing”. Alares designed the mechanical system and geothermal loopfield. The loopfield consists of three wells drilled to 450 feet below ground (see adjacent Photo). A water-to-water ground source heat pump (GSHP) was selected for the building’s heating and cooling system which also eliminated ductwork. “The need for a single, simple source of heating and cooling that is efficient was important for our facility” said Jon Maldon.

The GSHP system is connected to radiant floor system which is an extremely efficient method of heating. The radiant tubing will be incorporated in a flooring system call “WarmBoard”. This system will allow the installation of wood flooring. For cooling and dehumidification, the GSHP is connected to fan coils.



**Photo: Installing Geowell at Wine Shop in RI**

Waste heat from cooling during the summer will be stored in the ground and then in the winter this heat will be extracted to heat the building.

Another innovative energy saving energy feature that was incorporated into the heating system was the use of waste heat from the beer cooler. Under normal conditions, waste heat from the beer cooler would be directed into the atmosphere. Instead waste heat will be directed into the ground where it will be re-used to heat the building.

*Total expected energy  
savings will be greater than  
40%*